

thin transparent film. A low power is sufficient to show the general forms and nature of the fragments, but they are often so beautifully preserved as to display their most minute structures when examined with high powers.

With the view of ascertaining whether there is any difference of material in different parts of the beds, I selected from one of the quarries, containing two thick beds with some intervening and overlying thin shaly layers, specimens representing the overlying shaly limestone, the material between the two beds, and the upper, middle, and lower portions of each bed. Duplicate preparations of all these specimens were kindly made for me by Mr. E. Murphy, of this city; and on being examined they afforded the following results:—

1. Above upper bed.—Very small fragments of crinoids and shells with numerous minute and probably young univalve and bivalve shells, in patches in a paste containing black earthy and organic matter.
2. Upper part of bed A.—Principally joints of crinoids; some fragments of corals, especially *Ptilodictya* and *Monticulipora*, and shells.
3. Middle of Bed A.—Similar to the last but more corals.
4. Bottom of bed A.—A still greater proportion of *Ptilodictya* and *Monticulipora*.
5. Between A. & B.—Crinoids and *Monticulipora* in about equal proportions, some *Ptilodictya*.
6. Upper part of bed B.—Similar to last, but still more corals.
7. Middle of B.—Principally *Monticulipora* and *Ptilodictya*, but still many crinoids.
8. Bottom of B.—Almost wholly *Monticulipora* and *Ptilodictya*.

It thus appears that the only material difference in these specimens is the great prevalence of crinoids toward the top, and of corals and Polyzoa toward the bottom. It is proper to add that, though the families and genera named above largely predominate, there may be detected in any specimen fragments of shells of brachiopods and gasteropods, and of corals of other genera than those named, though in comparatively small quantity.* With the exception of the first specimen, none exhibited more than traces of earthy or aërnaceous matter.

The fine grained earthy limestone, marked No. 1, and which,

* According to Mr. Billings, Cystideans have also been important contributors; but in my examinations their remains are not distinguished from those of the Crinoids.